1901-1902 Issue

Telephone Long Distance
North 1305

Voigtmann & Company

MANUFACTURERS OF

IRON AND COPPER

Window Frames and Sashes

FOR CARRYING WIRE GLASS

...AND...

The Voigtmann Standard

Automatic Closing and Locking Window

Comparison of Old and New Fire Window Construction

THE OLD WAY

The Ordinary Bar Frame Window and Fire Shutter

PATENTED MARCH 8 AND AUGUST 15, 1898.

NOV., 1899 SEPT., 1900

Fully Conforming to the requirements of the FIRE INSURANCE UNDERWRITERS for Fire Proof Windows in Lieu of Common Windows and Fire Shutters

THE NEW WAY

Our Wire Glass—More and Better Light and Fire Proof

Voigtmann & Company

123-7 Ontario Street CHICAGO

Theoretically Good
Practically Good
Experimentally Good

The Voigtmann Standard Automatic Closing and Locking Fire Window.

THE
"FUSIBLE LINK"
INSURES
THE
AUTOMATIC
CLOSING
AND
LOCKING OF THE
WINDOW
UNDER FIRE

MADE OF

Wire Glass in Hollow Metal Frame

. . . . and Sash . . . .

Voigtmann & Company

MANUFACTURERS

123-127 Ontario Street, Chicago

AUTOMATIC CLOSING FIRE WINDOW

IN PLACE OF

Common Window and Fire Shutter

Pioneers
Inventors
Manufacturers

WE have not considered how to make our goods yield us a large profit so much as we have tried to give value received for a fair selling price; the material that we use is bought from the best mills in the trade, our workmen are skilled mechanics who perform no other service than the making of fire windows, and we solicit a rigid inspection of our completed product. To each window we attach our name plate and it is our desire that this plate should in time be understood to stand for all that is acceptable in such work so that fire inspectors will have to take no further note of fire windows that are brought under their notice than to see if they are "Voigtmann Windows" or the other kind. The name "Voigtmann" on a window stands for just as much as "Grinnell" on a fire sprinkler head, "McCormick" on a harvesting machine, "Steinway" on a piano or "Waltham" on a watch.

THE proper preface to our catalogue would be an article of considerable length and much interest upon wire glass, its conception nearly fifty years ago and the several failures prior to finding a process for manufacturing and placing it upon the market in a merchantable condition and at prices to allow its general use. Such an article comparable with the subject would develop its superior value as a substitute both for architectural and economical insurance purposes. While we have anticipated many reasons for its superiority and many places where its substitution greatly enhances the utility of buildings, we are constantly finding good, economical reasons upon which its diversified use can be well and properly advocated.

While we advocate wire glass fire windows generally as a substitute for common window and fire shutters, yet our claim can properly be narrowed down to our own constructions, and in particular our Standard Automatic Closing and Locking Fire Windows, the workmanship and details of which we are able to maintain under our patents, that in the estimation of fire Insurance Companies and Underwriter's Associations are to a great degree a safe guard against cheapening processes incidental to competitive bids upon work demanded under loosely drawn specifications.

To remark upon competitive fire window work as against the straight specification of our automatic window, on the basis of so much per square foot of window opening, we would state that the more we see of window work, done under specifications that encourage bids and a variety of constructions, the more confident we are that our strict adherence to Standard Work, that is always indicated by our Name Plate attached to windows, will prove a factor of considerable value in the insurance and inspection of property, to view the advantages or disadvantages of competition we have in no case found that the saving from competivive bids would compensate the purchaser for a loss of our standard construction and our Automatic Closing and Locking Device.

The automatic closing and locking device can be minimized as much as possible and yet always demand a preference of the thorough going business concern that appreciates an insurance rating as only incidental to their own real danger from the spread of fires.

The Voigtmann Fire Window is pronounced by our country's best authorities on Fire-Retarding Devices and Building Materials, a creation and addition to the Arts sufficient, in its simplicity and endurance against fire and water, to command the attention of the public generally and in particular to very much interest Property Owners carrying insurance on structures of masonry and contents in same.

The object of the Invention is to provide a window, the sash and glass of which will not be destroyed or seriously damaged by fire, but will be to all intents and purposes fire-proof, and which will close automatically when struck by the heat.

Heretofore sheet metal sash and casings have been used, but they have been put together with solder or other destructible material which melts and allows the joint to fall apart when subjected to heat.

Also it frequently happens that the so-called fire proof window being adapted to open up under ordinary circumstances, will be caught by a sudden outbreak of fire with the sash open, and therefore prevent no obstruction to the fire whatever.

This invention aims at overcoming these objections.

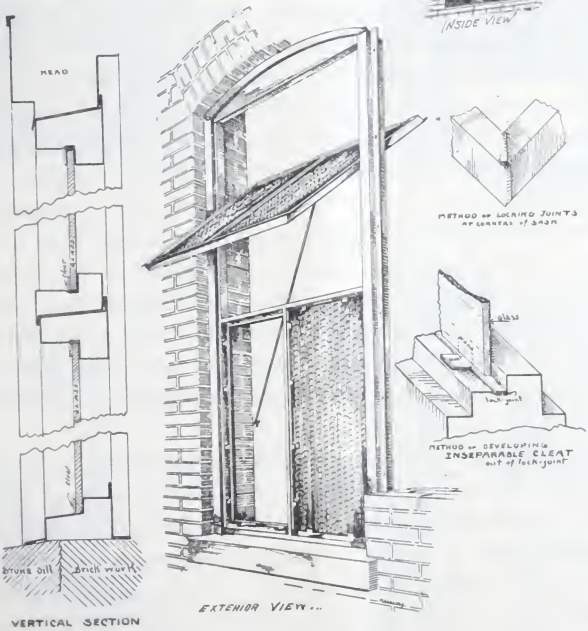
It consists, broadly, of a window having a sheet metal casing with clenched joints at its corners, and elsewhere, which require no solder, and a fire-proof glass set in the sash, with metallic fastenings, one of the sash being stationary and the other sash hung horizontally on pivots and for ventillation held open by a retaining device which will be severed by the heat of a fire.

INCREASES RENT VALUES.
FIRE BARRIERS AFFORDING LIGHT AND VENTILATION.
DECREASES FIRE PREMIUMS.

THE VOIGTMANN
"STANDARD"
AUTOMATIC CLOSING & LOCKING
FIRE WINDOW
OF WIRE GLASS AND HOLLOW METALLIC FRAME
"PATENTED"

VOIGTMANN & COMPANY
MANUFACTURERS
CHICAGO

INSIDE VIEW

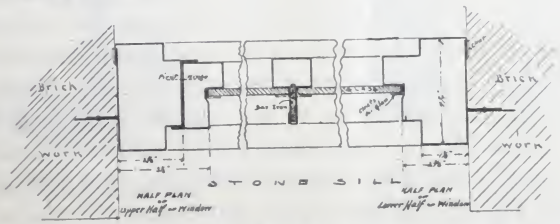


VERTICAL SECTION

EXTERIOR VIEW

METHOD OF LOCKING JOINTS
OF CENTRAL of SASH

METHOD OF DEVELOPING
INSEPARABLE CLEAT
out of lock-joint



PLAN

MANUFACTURED UNDER PATENTS

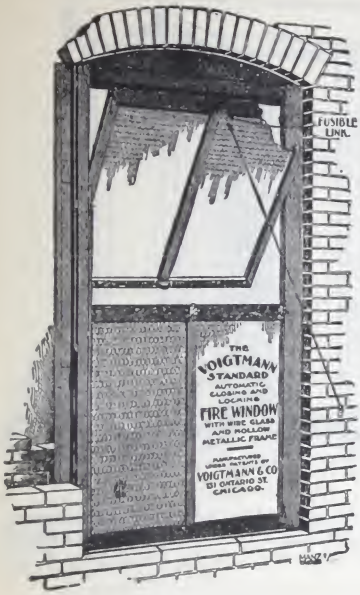
No. 6000,186	No. 609,854	No. 637,907	No. 657,996
Mar. 1898	Aug. 1898	Nov. 1899	Sept. 1900

IN issuing our catalogue it seems as if only half of our plan would be stated if we neglected to point out the close relation that exists between economical insurance rating and our Standard Automatic Closing and Locking Fire Windows.

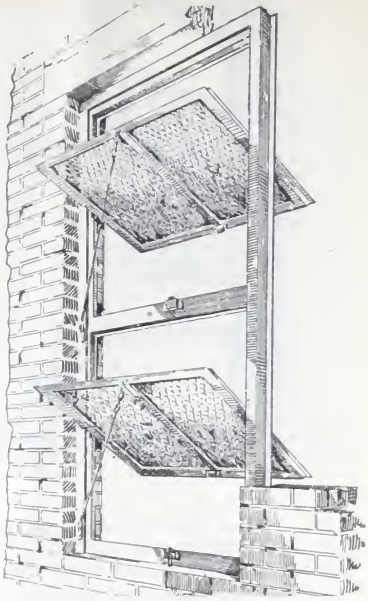
While this is very fully testified to by letters that we publish from Secretaries and Inspectors of Underwriters Associations and Inspection Bureaus, we doubt very much whether the architectural profession have an intimate knowledge of the conditions that insurance companies are endeavoring to combat in order to secure a profit above expenses and the payment of fire losses.

A leading factor in this effort to so formulate the fire insurance business that it will profitably stand against these expenses and losses, that last year aggregated about $150,000,000.00, is the National Protection Association. Their aim favors not only the best of construction generally, but the universal use of wire glass in window and partition construction. Their proceedings and recommendations are published annually, and those seeking authoritative information upon fire retarding and light diffusing construction will profit by supplying themselves with these pamphlets.

An effort to follow lines parallel with those laid down by the National Protection Association cannot fail to bring about a condition in building affairs that will result in great good to owners, tenants, insurance underwriters and to the architects themselves. There must in time be some central body that will occupy such a strong position that it will dictate in matters that bear in the slightest way on the hazard assumed by fire insurance companies; while we do not pretend to anticipate that the National Protection Association is to be this body there is but small doubt that the lines along which they are working are so firmly grounded on good judgment and fair dealing that the development of the movement they have instituted will lead to something of this sort; then we will have buildings throughout the country that have been built to one fixed standard in all details of construction.



Standard Automatic.

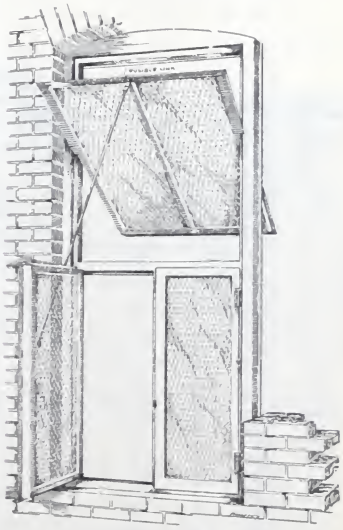


INTERIOR VIEW.

Double Standard Automatic.

INTERIOR VIEW.

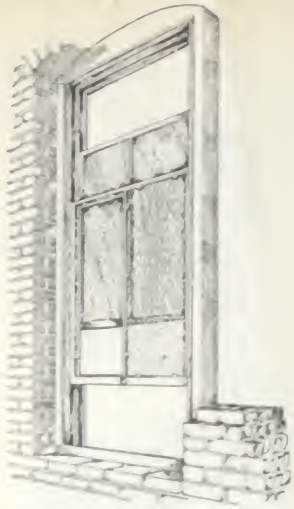
Single Sash Standard Automatic.



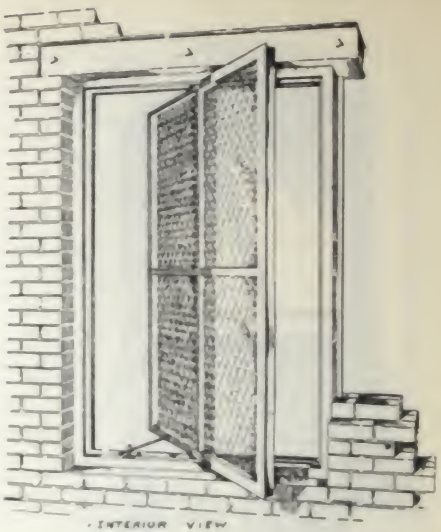
INTERIOR VIEW.

Standard Window Casement substituted for stationary construction commonly used in tier in front of Fire Escapes to afford exit and entrance.

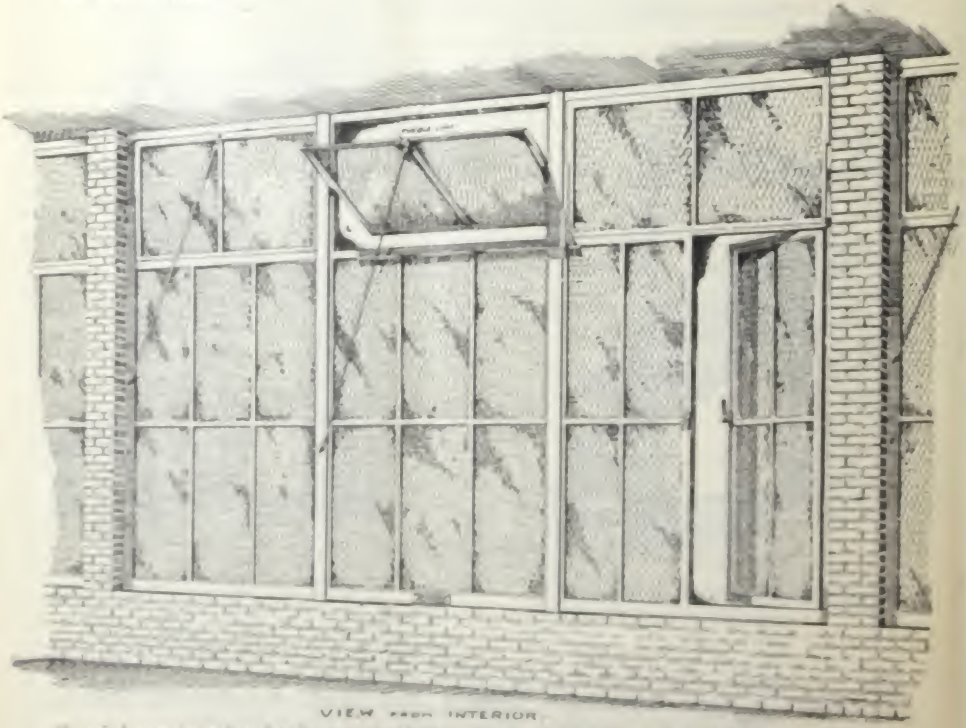
We have a new Automatic Closing Fire Window allowing sash to revolve for washing from inside and supplemented by improved weather qualities.



Box Frame Fire Window operated with sash weights in ordinary way; also on counterbalanced plan without weights, the upper sash lowering as lower sash rises.



Vertically Pivoted Fire Window. Not automatic in closing and locking under fire.



Special construction for large openings. Transoms so hung as to close automatically, lower part, excepting fire exit to escape, stationary construction.

Opening and closing of Shutters eliminated.

TESTIMONIAL

BY

The National Protection Association.

AT the Fifth Annual Meeting of The National Fire Protection Association held in Chicago, June 11, 12 and 13, 1901, a report embodying recommendations covering a standard for the construction of Metallic Frames and Sashes for carrying Wire Glass, to be used as a substitute for the ordinary windows in combination with fire shutters, as drawn by a Committee which have had the subject under consideration for three years, was adopted.

The recommendations are very explicit and quite fully describe the details of construction demanded; precautionary measures are suggested to Rating and Inspection Departments, in their various jurisdictions, that will serve in demanding and maintaining a degree of excellence fully adequate to justify the action of The National Protection Association in its endorsement of this recent fire retarding construction to Insurance Companies in its auxiliary capacity. A suggestion of considerable prominence is that every window of this nature shall have the name plate of manufacturer.

Equipment for Automatic Closing was especially mentioned; its value and installation for many exposures was left to the judgment of the Underwriters having jurisdiction.

Note: To anyone familtar with fire retarding and extinguishing devices the word "Automatic," that particularly describes our window, in comparison with other constructions, will convey its value and importance not only as a means for confining fires, but as a proposition upon which insurance can annually be purchased at an advantage.

Window showing Semi-Circular Work at Top and sightliness of the whole. Furnished for Power Houses.

Mullion Window, having Structural Iron in place of Division when necessary. We make them in groups of 2, 3 and 4.

Warehouse of Reid, Murdoch & Co., Wholesale Grocers, Cor. Market and Lake Sts., Chicago. D. H. Burnham & Co., Architects.

250 of the Voigtmann Standard Automatic Closing and Locking Fire Windows were used in the construction of this great warehouse.

Cut made from pane of glass taken from ruins.
Dimensions, 24x48 inches.

Specifications should demand work in accordance with local underwriters' requirements.

VOIGTMANN & COMPANY,
MANUFACTURERS UNDER PATENTS.
123-127 ONTARIO ST.,
CHICAGO.

TELEPHONE NORTH 1305.

The Voigtmann Standard Automatic Closing and Locking Fire Window of Wire Glass in Hollow Metallic Frames indorsed by practical demonstration.

Following is our letter to Mr. E. U. Crosby by which we endeavor to convey general information attending the construction and burning of Armour & Company's Felt Factory. From it conclusion can be drawn as to the value and effectiveness of our standard fire window that at the time of building, one year ago, was considered superior to the common window and fire shutter, and which this most practical and crucial demonstration emphatically denies.

The many requests we have for particulars concerning this fire prompt us to reproduce this letter for circulation.

MR. E. U. CROSBY, Manager, April 22, 1899.
Underwriters Bureau of New England, 93 Water Street, Boston, Mass.

Dear Sir:—Acknowledging your favor of the 18th inst. by which you ask for particulars of the burning of Armour & Co.'s Felt Factory with special regard to stability of the Standard Automatic Closing and Locking Fire Window of Wire Glass in hollow metallic frame and sash under fire, it gives us much pleasure to advise you in a preliminary way, that this factory building was built a year ago. Dimensions, 220 feet by 80 feet; five stories in height; mill construction; provided on south side and east end, where factory was in close proximity to other buildings, with our Standard Fire Windows.

The fire starting at three o'clock in the afternoon afforded ample opportunity for witnessing the automatic closing and locking of windows under fire, some of which were open for ventilation. To convey to you the intensity and duration of fire that these windows held confined, we will state that timbers carrying floor were from 14 to 16 inches square and that these timbers had to burn off before wall fell. That wall fell in two hours and at the time of falling the whole south side with its hundred and fifty windows was for all purposes a dead wall, keeping the fire perfectly confined, and from communicating to warehouse that was within fifteen feet and contained a stock valued at about $400,000. Windows in that part of wall that did not fall held the fire confined throughout. The endurance of this window under such a severe and continuous heat for so long a time was an agreeable surprise to the most sanguine and yet in strict conformity to rules, for Wire Glass in question cannot fail in its mission as a fire retardent where one surface is exposed to the air. Considering rules governing our frame and sash of hollow air chambers throughout and constructed by a system of lock joints and rivets, free and independent of solder, it is easily appreciated that while the half of a frame may be to a white heat the other half, exposed as it is, insures continual structural strength.

This demonstration tends to establish the following: That the window affords light and protection from fire at all times; that when open for ventilation it will close as readily under fire as a sprinkler with same fusible link will act; that it will resist heat much longer than a shutter; that firemen may enter through it by breaking glass out; that by approaching windows by fire escapes or ladders, holes large enough for the introduction of water without admitting a draught can be easily made, that the annoyance and danger of falling glass to firemen is eliminated, that a better observation of an interior fire is had than is possible where shutters are employed, that the careless neglect of closing and keeping shutters in repair is done away with, and that these advantages combined seem capable of convincing us that we now command a fire-retarding device that the more we depend upon it the greater will become our appreciation.

To afford you a more comprehensive estimate of this frame, and the workmanship involved in its construction and precautionary measure necessary, we herewith enclose you a copy of specifications used by our Underwriters Association. Being pioneers in this work we were able to secure a few patents on the window that protect us and the public as well from various cheap constructions that so often are the ruin of good things.

We would further suggest that if you address Messrs. Armour & Co. you may receive from them something very satisfactory in the way of comment on this window.

Yours very truly,
[*Signed*] VOIGTMANN & COMPANY.

Polished Wire Glass makes this window adaptable in places where an outlook is a crying need. Not necessarily expensive, as one pane in a window is sufficient.

The Voigtmann Standard Automatic Closing and Locking Fire Window with Frame of Quarter-Inch Plate Glass in three and four-inch squares, electro glazed, to afford outlook.

Polished Wire Glass can be substituted for the Electro Glazed Frame.

MISSISSIPPI GLASS CO.

Sole Manufacturers under Patents.

The process for manufacturing the Wire Glass is a recent invention. The glass has commanded very general attention from our country's more prominent Authorities on Fire Retarding Devices and Materials, and has at all times under demonstrative exhibits proved its endurance in properly constructed frames to withstand fires of greater intensity and duration than ordinarily witnessed by Fire Departments.

It is said that the power to see and comprehend is quite an art. This is especially so with fire windows. We can tell you of it and recite its many advantages, to impress you it must be seen under fire. Accordingly it is a factor the impression of which is only faintly expressed by consideration accorded it by fire insurance companies.

THE writing of Fire Window Specifications can be made a matter by itself or listed in connection with Metal Work, the latter if only a few windows are needed for an equipment. As the cost of Fire Insurance, both on building and contents, will become in a short period of years an item of considerable value, it seems a separate specification, that will secure all the concessions afforded by local rating authorities for compliance with their rules, would far outweigh any advantages accruing from loosely drawn specifications necessary for competition, such as is expected in General Metal Work that includes Skylights and roofing work.

Specifications for Fire Windows differ from common window work in that specification includes Wire Glass and Glazing of same, together with all necessary hardware in place and adjusting of windows for approval of Architect. Such a specifiication, after dealing with Fire Escapes, Bulkheads and the several constructions that add much in the way of daily advantage to occupants, will be found quite sufficient for one contract.

As the manufacturing of Fire Windows so as to command a continued acceptance by Fire Insurance Companies, depends somewhat upon moral responsibility rather than upon the cheapest bidder, and as the business is of necessity a distinct line of work, it is quite plainly seen that the combination of Fire Window work with Metal Work makes it impossible for the Cornice Man to enter competition; on the other hand a manufacturer of a specialty in Fire Window Work must drop his specialty to enter competition under Specification, and the ordinary effort to secure competition is quite apt to defeat or threaten the low rating and minor advantages sought when the Fire Window feature is first decided upon. As a determining factor let us recognize that in addition to Inspection service of various Underwriters Associations the Individual Insurance Companies have their own Inspectors. With the large majority of men in this Inspection Service the Name Plate of Maker, that we seek to establish, will govern.

To anyone who has bargained with us for an equipment of our Window Work and whose specifications were written in accordance with this agreement, and who has lost money or been disapointed in results, we will make proper restitution.

It is naturally a question with a prospective purchaser in negotiating for a patented article, as to how much he is paying for material and expenses of manufacturing and marketing and how much in addition he is paying for patents. As patentees we are free from any Royalty expense, and as we are selling our windows from Kansas City to Philadelphia and as far south as Florida, we are of necessity confined to a conservative business profit. To charge an extra profit for Patents would restrict us in marketing our particular construction. If we continue on same lines we have followed in the past we very much doubt if our methods will be questioned by anyone willing to pay for value received.

It is only a question of time when the inspection of fire window work will require more rigid observance of needs by architects and builders to secure economical rating.

Showing the employment of our Fire Window (special construction) upon a 15-foot Alley in the New Department Store of Schlesinger & Mayer, State and Madison Streets, Chicago. Louis H. Sullivan, Architect.

Building renovated—a practical demonstration of our Fire Window Construction and comparative advantages as against Common Windows and Fire Shutters. Edgar S. Belden, Architect.

Free transmission of light at all times.

SUPPOSE a very common case. A $75,000 warehouse having insured contents and machinery of $150,000, total $225,000, insured for $175,000, in close proximity to similar property. Insured against two hazards interior and exterior, cost of insurance annually from $1,400 to $2,500. As the cost of a permanent automatic fire window equipment can easily be kept below the annual cost of insurance it becomes a conclusively proven fact of value.

The casual examination of window work will lead a person to the conclusion that (barring patents) a locally made window is an easy proposition; this might be granted, if no insurance is carried, or if property is insured in a local company. As it is insurance is centralized, home and foreign companies participating, and this business has become a leader in volume in our commercial affairs and has to be protected in every way possible. An examination of an underwriters schedule, by which all property insured is described, will convince you that there is hardly an item missing that describes the physical and moral risk, some increasing and some lessening the rating. If wire glass in metal frames and sash continues in popularity a few of the many will be recognized as factors in rating by insurance companies. Those so recognized will owe their popularity to sustained character rather than to cheapness.

The specifications of Fire Window Work have yet to be performed by architects. The performance is easily within the possibilities of the profession. So far the work of making details and specifications for insurance purposes is not comparable with our formulation of the work. With us it is work for confining fires rather than an effort to corrupt a fire factor by introducing all the conveniences. An examination of our work and the appropriation of of our different construction as necessary to meet peculiar requirements will be very much like your selection by numbers or patterns of a variety of materials you have to use constantly in your work.

If by any plan, at moderate expense, buildings in our business centers can be isolated so as to prevent the spread of fires, the intelligent and far sighted property owner will adopt it. Aside from the comfortable idea that the building and its contents are secure from fire, the saving in rates of insurance, the preference with tenants and the increased rent that can be obtained will, in a very short time reimburse for the outlay.

Approximate Cost of Our Standard Automatic Closing and Locking Fire Window,

including a priming coat of paint before shipment, with all necessary hardware in place, and ¼-inch Ribbed Wire Glass cut ready for setting, Chicago, will compare very favorably with cost of the ordinary box frame window with glass of double thickness in combination with standard fire shutters.

FOR ESTIMATES please notice on page 40 our agencies for cities other than Chicago, where model of our Standard Window can be seen and where full particuiars and prices can be had upon our various makes of windows.

Proposal furnished upon receipt of plans or description of window openings in masonry.

Unless otherwise instructed, we will figure our Standard Work, that will carry our Name Plate and demand the lowest Insurance Rating.

Notice a Form of Contract on page 38, and various Constructions on page 39.

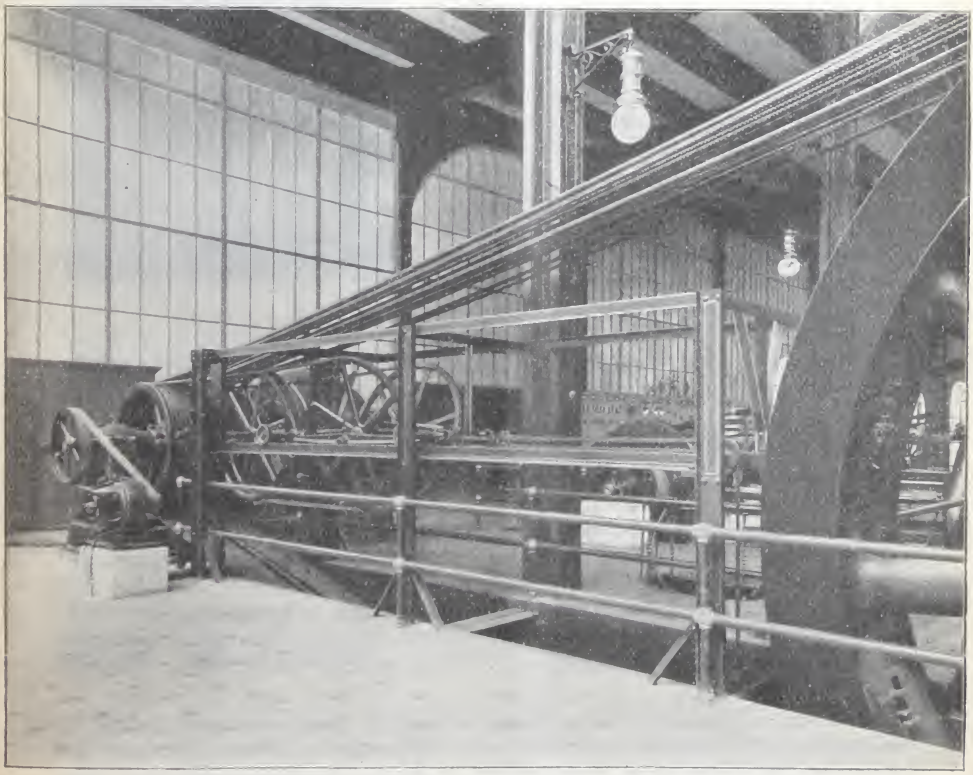
Polished Wire Glass 65 cents per square foot extra.

The Wire Glass in Hollow Metal Frame Construction as shown by cut is a substitution for Hollow Tile Partition or Metal Lath Partition. This construction is highly recommended by many of our country's best authorities on Fire Retarding Devices for reducing large floor areas and more effectually confining fires from spreading without detracting from the light.

By sash horizontally pivoted and equipped to close automatically under heat by the introduction of our Fusible Link, ample Ventilation can be had.

This Partition is highly recommended for Light Wells, such as are so commonly found in Retail Houses of large dimensions and centrally located.

The Construction of this Partition is same as our Fire Window Construction. Maximum size of glass is same as indicated by Specifications of Chicago Underwriters Association. The frame is reinforced as necessary with Structural Iron. Polished Wire Glass can be used more or less consistent with need and economy. Glass Doors can be easily introduced. To give an idea as to the appearance of such work we have only to call to your mind the great amount of glass work in Office Buildings and suggest the substitution of Iron for wood that increases the glass surfaces. By using the Maze pattern rather than the ribbed the wire will hardly be noticeable.

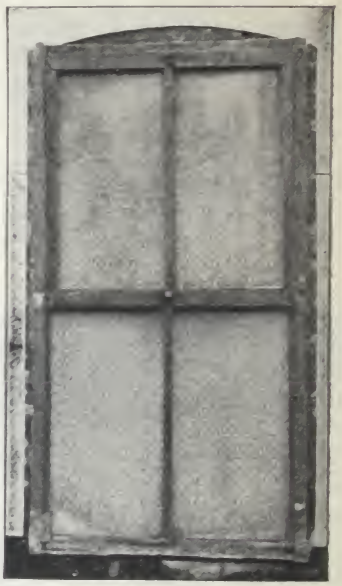


Section of Partition 190 x 21 ft. furnished Armour & Company for Power Plant and fully described by Supplement to May (1900) Issue of Inland Architect.

Insurance is good—vigilance is better.

A FIRE TEST....

A Fire Window of Wire Glass in Hollow Metallic Frame and Sash taken from the standing ruins of Armour & Company's Felt Factory, Chicago. Burned March, 1899.



These windows have been accepted for nearly four years by Chicago Underwriters' Association in place of and equivalent to the ordinary window and fire shutter.

This demonstration tends to establish the following: That the window affords light and protection from fire at all times; that when open for ventilation it will close as readily under fire as a sprinkler with same fusible link will act; that it will resist heat much longer than a shutter; that firemen may enter through it by breaking glass out; that by approaching windows by fire escapes or ladders, holes large enough for the introduction of water without admitting a draught can be easily made; that the annoyance and danger of falling glass to firemen is eliminated; that a better observation of an interior fire is had than is possible where shutters are employed; that the careless neglect of closing and keeping shutters in repair is done away with, and that these advantages combined seem capable of convincing us that we now command a fire retarding device that the more we depend upon it the greater will become our appreciation.

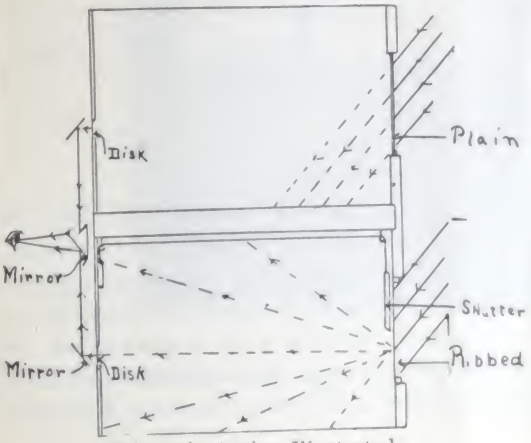
Special interest is added to this exhibit by the fact that the windows (200 in all) successfully held the fire confined throughout, thereby having kept it from spreading to warehouse, ten feet across alley on the side, and to stables six feet across alley at end of factory.

Burned factory was built in the summer of 1898 in the most approved and substantial manner, 230 x 80 feet, 5 stories high. Fire took place at 3 p. m. near center of third floor. Seemed to spread throughout within ten minutss. Windows that were open for ventilation closed automatically under heat. Building was total loss. Prevailing wind coming in from side street (north) where only common windows were, swept and kept fire up against south wall having the Fire Windows. Duration of fire, five to six hours.

Resident representatives of our larger Insurance Companies participating in carrying $300,000 of insurance upon warehouse and contents acsoss alley that depended for its protection upon these Fire Windows in factory, joined (by solicitation after having separate and most thorough examination and reports made by their officers) in acknowledging their appreciation of the window's worth, fully concurring in Armour Company's choice of it as better than common window and fire shutters.

Prismatic Action Illustrated

The following diagrams and extract are used with permission of Mr. Edward Atkinson, of Boston, taken from report upon "Diffusion of Light" made under dates of July 19, 1898, and October 8, 1900, by Mr. Chas. C. Norton, Massachusetts Institute of Technology:



Prismatic Action Illustrated.
For Alley and Light Court Windows.

Mr. Norton, of the Boston Institute of Technology, after concluding experiments for Mr. Edward Atkinson, President of the Manufacturers' Mutual Fire Insurance Co., to find the advantages or disadvantages of Ribbed Wire Glass as compared with plain glass for diffusing light, states:

"Speaking broadly, I found that the center of room with window on alley was as bright with one square foot of Ribbed Wire Glass as with three square feet of plain glass."

The data on the varying sky angle was obtained by placing outside the window at a distance of about five feet, a vertical curtain which might be raised to cut off the sky light at any desired angle, side curtains being provided to cut off the light at the ends of the main curtain.

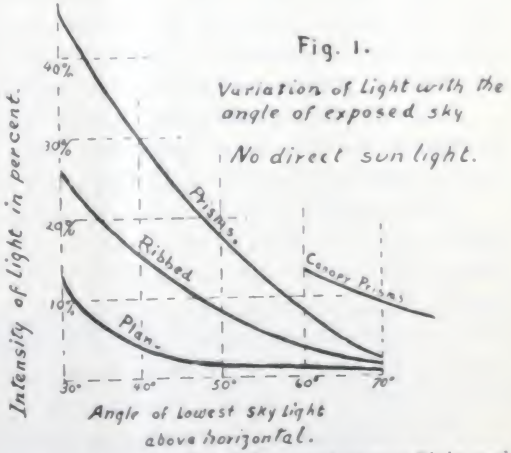


Diagram showing the difference between Plain and Ribbed Glass in the Diffusion of Light.

The Refraction and Diffusion of Light by Ribbed Wire Glass

Softens the light and dispenses with curtains.
Strengthens the light at distant points.
Gives the qualities generally conceded to north light.
Where the intense light that is found directly in front of a window is necessary to combat astigmatism, a light of polished wire glass is used.

Our work is figured on a square foot basis.

The Chicago Underwriters Association,
157 and 159 La Salle Street

Chicago, April 1, 1899.

Messrs. Voigtmann & Company,
City.

Gentlemen:—

The accompanying specification describes the proposed standard for window of wire glass in hollow metallic frames and sash. The window seems well calculated to resist and endure against fire. It is my opinion that this window in question is more or less dependent for its enduring qualities upon its peculiar construction, embodying as it does in all its parts, air chambers and spaces that are not only non-conductors of heat, but by the many angles employed in its construction a rigidness is secured ample to satisfy all demands.

The substitution for locked joints and double locked joints for solder and rivets, and the fact that the parts are reduced to a minimum, and that these parts in themselves do afford weather qualities and cleats for holding glass independent of putty are points of too much importance to pass without proper mention and recognition.

The automatic closing and locking device and stationary lower sash are features we very much appreciate and strongly recommend as it materially insures protection at all times and under all circumstances.

This window coming upon the market at a time when there has been so much criticism of iron shutters I propose to accept it in many places in lieu of the ordinary window protected by iron shutter. It is my opinion that all efforts on wire glass and iron frame window work should tend to improvement, rather than to cheapening and that certain precautionary measures can with much propriety be taken that will look to the maintainance of responsible construction.

Please look over the proposed requirements and if you can recommend any improvements that in your opinion will improve them, or if you have any objection to them, advise me at an early date and oblige,

Yours truly,

(Signed) T. A. Bowden,

Supt. of Ratings.

Showing our Standard Automatic Fire Windows in several buildings and alleys of Armour & Co., Stock Yards, Chicago.

Showing our Standard Automatic Fire Windows in Newman Bros.' Piano & Organ Factory, West Chicago Avenue, near Halsted Street.

THE CHICAGO UNDERWRITERS' ASSOCIATION.

CALUMET BUILDING

Requirements for the Acceptance of Windows of Approved Wire Glass in Metallic Frames and Sash in Lieu of Fire Shutters.

Frames—All parts of frame and sash must be made of No. 24 galvanized iron or heavier, and of a quality soft enough to bend without breaking, or 18 oz. copper. Sides so made as to form an air space at least 2 in. x 4 in., made of three parts, two of which are locked entire length, making a half inch seam of three thicknesses. The third to be locked to first two parts by inseparable cleats every 18 inches. The two parts already mentioned to provide in themselves weather qualities and inseparable cleats for holding glass, thereby insuring stability by reducing to a minimum the parts and connections.

Top Rail—To be made in one piece so formed as to afford ample weather qualities.

The Sill—To be made of one piece formed so as to afford ample weather qualities and condensation sheds with outlets.

The Middle Rail—To be made of two pieces forming an air chamber with inseparable cleats, lock jointed, and of length sufficient to extend in and through sides of frame where the same is lapped four ways onto sides and riveted. The top of this rail receiving sash is made with a wash.

Connections of various parts of frame must, in all cases, be made by lapping prior to riveting.

Sash—The plain frame, having top, bottom and two sides, of air chamber construction and made so that depth of sash is two inches, and width of same back or front of rabbet is two inches. The same shall be lock jointed throughout, shall have inseparable cleats, and all necessary weather qualities. The corners of this frame shall be double locked. Each corner of frame shall be double locked on front, back, and at sharp corners, so as to completely dispense with the need of solder and rivets. The sash shall be so made as to correspond with frame at points of meeting, and the hanging of same must be on horizontal pivots above the center, to allow quick closing as hereinafter arranged for, automatically.

Reinforce frame where pivots enter by riveting a strip of $\frac{1}{8}$-in. iron so bored as to allow a bearing for pivot.

The upright sash rail must be made of one piece of galvanized iron or copper, with inseparable cleats and lock jointed about an iron bar $\frac{1}{4}$-in. x $1\frac{1}{2}$-in., in a manner to afford an air chamber of one inch square, and rabbets for holding glass, and the same lapped and riveted to frame and sash.

Mullion Windows—Where architect prepares clear opening for a mullion window, the metal frame must be reinforced at every point of division by structural iron, channels preferred. These divisions that of necessity must be chambers of air spaces, will afford ample room for channels. The channels must be built into window as made.

In General—Flat surfaces that retain water must be avoided. The lock shall be a double spiral spring brass lock, and shall be bolted to middle rail and sash.

The window shall be made with stationary lower sash, and upper sash swung on bearings in upper half of sash, and shall be so equipped with fusible link, rings and rod, that the same will close and lock automatically under fire.

The rabbets against which the glass is set, shall be for glass of a small to medium dimension, $\frac{1}{2}$-in. wide, and for a glass of more than medium dimensions, $\frac{3}{4}$-in. wide.

The inseparable cleat must be at least $1\frac{1}{2}$-in. in length, and must repeat at least every 12 inches.

Windows of more than ordinary width, shall be reinforced by structural iron in cross-rail.

Caution must be had against using glass of unreasonable dimensions. For a window 4 ft. x 8 ft. arrange sashes for three lights each, or glass 15 x 46. For a window 4 ft. x 6 ft. arrange sash for two lights each, or glass 22 x 34. For a window 5 ft. x 8 ft. arrange sash for three lights each, or glass about 19 x 46. My recommendations would be not to exceed in width 18 inches, where height is 48 inches or more and in no case to exceed 24 inches in width.

May 1, 1899.

T. A. BOWDEN,
Superintendent of Ratings.

View of our Standard Automatic Fire Windows in Reid, Murdoch & Co.'s Warehouse, Cor. Lake and Market Streets, Chicago.

View of Deering Harvester Co.'s Power Plant.

We prefer in making proposals to mention number of openings for entire work or by elevations, as performance and settlement of such work is simplified and expedited.

SHIPMENT, INSTALLATION, GLAZING and ADJUSTMENT

Window Frames are primed with Lead and Oil before shipment unless otherwise requested. Shipments out of town of smaller quantities than car lots, are crated. Glass is boxed and shipped separately.

Window Frames for New Work are set upon sills, properly adjusted and braced by carpenter, to be built about by mason as the ordinary window.

Directions for installation of our other make of windows is omitted as unnecessary in this issue.

TO GLAZE.—1st. Putty rabbets before setting glass.—2d.—Put glass in with special care that ribbed side may be on inside. 3d. To preserve the condensation outlets at bottom and to keep glass from crowding down and cutting off outlets, place in putty at bottom rabbet, a couple of small, square pieces of wood, from a half inch to an inch in length, upon which glass will set. 4th. Press glass well and solidly into place, and turn down onto glass the metallic cleats before final puttying. 5th. Adjustment of frame, for weather qualities, if found necessary, must be made upon discretion of workman, either before or after glass is set.

Fire destroys, disorganizes and is treacherous.

While testimonials as a selling factor have in a measure gone into disuse we give herewith a few of those that we have received and that we think will prove of more than passing interest.

The Cincinnati Underwriters' Association.

Cincinnati, Jan. 25th, 1901.

Messrs. Voigtmann & Company,
Chicago, Ills.

Gentlemen:—

I am in receipt of your favor of the 19th inst., and am pleased to comply with your request to as great an extent as I can consistently, as secretary of this Association; you undoubtedly appreciate that it is not within the province of this body to advocate the use of any particular building material, and yet we are constantly appealed to by owners, architects and contractors for information in such matters, that will afford them the greatest security agaistn fire, and have the most beneficial effect on insurance rates.

Our Association certainly cannot withhold recognition and appreciation of the window that you have so successfnlly exploited and that has been favorably passed upon by the leading insurance men of your city—this after the practical demonstration had in the burning of the Armour Felt factory.

You undoubtedly appreciate that this office is in a way responsible for a vast amount of property and that its recognition of, and ruling on, anything so very important as window work must be very carefully and advisedly given. Following along this line it will prove gratifying to you to know that we do recognize your standard automatic closing and looking fire window construction as much better fire barrier than a window of the same material, made upon the ordinary pattern, and operated by sash weights, that of necessity must remain non-automatic.

I have noticed the specifications of the Chicago Underwriters' Association governing the construction of what in their estimation seems to be the best window so far presented to them, and the specifications that, to our understanding, constitute a description of your window. The assistance that you extend to architects by supplying them with diagrams of your window, which they can incorporate in their work, should be appreciated by them. It is an affair of simple comprehension that the windows made under protection offered by the patent office, and sold to the trade on a square foot basis of price is an assurance to fire companies and the public, that a contract with you promises a conservative and satisfactory result to all parties concerned. Accordingly I take pleasure in advising you that, not only your window, but your manner of marketing it, are on a par of conservative excellence.

Yours very truly,
Ed. C. Harding, Secretary.

Our drafting department will execute any special work that may be required, for approval and suggestions.

Insurance Companies demand specific construction for minimum rating.

This cut shows upper floors Alley Fire Windows of our Mullion Construction Made on Brunswick-Balke-Collender Co.'s Factory, Superior Street near Sedgwick Street, Chicago. A. K. Adler, Architect.

This cut shows our Standard Automatic Closing Fire Windows in West Wall of the Methodist Book Concern Building, No. 57 Washington Street, that overlooks adjoining roofs. W. B. Wheelock, Architect.

Details of any Style of Window shown will be furnished.

United States Branch
North British & Mercantile Insurance Compauy.

New York, Feb. 4, 1901.

Messrs. Voigtmann & Company,
123 Ontario Street, Chicago, Ill.

Gentlemen:—

As you may know, this company makes a specialty of underwriting "Improved risks." In this connection we wish a supply of your latest catalogue for distribution to our field force and inquiring local agents and property owners.

We are firm believers in the installation of wire glass windows when made according to the specifications of the National Fire Protection Association, and subject to inspection and approval of the local Underwriters having jurisdiction. It is, however, of utmost importance that the windows be *constructed* and *installed* by those making it a specialty in order to insure satisfactory results.

Yours very truly,
EVERETT U. CROSBY, General Agent.

Miller's National Insurance Company.

Chicago, April 25, 1898.

Mr. Frank Voigtmann,
129-131 N. Franklin St., Chicago.

Dear Sir:—

I attended a demonstration made by you on March 16th, for the pnrpose of showing the value of your "Fire and Burglar Proof Window Glass and Metallic Frame," as a protection against the spead of fire as against the old style iron shutter or ordinary glass windows, and came away entirely satisfied that the claims made by you were full substantiated by the demonstration.

I was particularly pleased with the test made by dashing cold water on the glass at a time when windows and door were as hot as the direct heat of the flames could make them. The fact that none of the lights came out and that there was no flaking off of the glass or opening up at the cracks or material warping or springing of the lights or frames, settles in my mind any question as to the superior utility of your devices for the purposes intended.

The condition ot the glass and frames after the demonstration was over was a surprise to me, as I had supposed that one fire was all that they were expected to withstand. So far as I conld see, aside from the discoloration by smoke and the destruction of the brass chains connecting the automatic closing device to the windows, there was no reason why, for all practical purposes, a single dollar of expense need be incurred to make the outfit as substantial and safe as before the demonstration was made.

It will be my pleasure to recommend to our policy holders the use of your devices wherever anything of the kind is needed.

Respectfully yours,
J. D. SHEAHAN, Gen'l Agt.

This cut shows our Standard Automatic Fire Window in W. W. Kimball & Co. Piano Factory, 26th Street and Rockwell Street. Wm. Strippleman, Architect.

Showing our Standard Automatic Fire Windows in McCormick Harvesting Co.'s Warehouse. Blue Island and Western Aves., Chicago.

The American Cereal Company.

Chicago, Ill., Feb. 2nd, 1901.

Messrs. Voigtmann & Company,
City.

Gentlemen:—

We take pleasure in reporting that the Standard Automatic Windows furfurnished by you for our Factory recently erected at Cedar Rapids, Ia., prove very satisfactory for our every day work.

We appreciate especially that the window affords a constant protection without interfering with the light and ventillation, and which are factors of considerable value to us.

Yours truly,
ROBERT STUART, Secretary.

Kingan & Co. Ltd.

Indianapolis, Ind., February 6, 1901.

Messrs. Voigtmann & Co.,
123 Ontario St., Chicago, Ill.

Gentlemen:—

Replying to your favor of January 29th.

We have adopted, to a large extent, your Automatic Acting Fire Windows, both the standard and the double standard construction, in lieu of fire shutters, and we found them to be helpful in the matter of increasing the light inside the rooms where they are used, and we feel that we are more securely protected than with the old style fire shutters which were almost constantly out of order, and with this automatic device the certainty of their being closed when required is a very strong commendation. We feel assured of their ability to withstand fire from the experience of others.

Respectfully yours,
KINGAN & CO., LTD.
W. C. JARVIS,
Supt. Construction and Machinery.

Work guaranteed to meet requirements of Underwriters.

Showing our Standard Automatic Fire Windows (Mullion Construction) in rear of building at No. 57 So. Jefferson St., Chicago.

Showing our Standard Automatic Fire Window in Sprague, Warner & Co.'s new Warehouse, Randolph Street, opposite Public Library, Chicago.

Minneapolis
Underwriters Inspection Office.

Minneapolis, Minn., February 7th, 1901.

Messrs. Voigtmann & Company,
123-127 Ontario St., Chicago, Ill.

Gentlemen:—

We are in receipt of your favor of the 29th ult. and in reply will say that we are very much in favor of wire glass windows and iron frames when properly made and installed. We have several buildings in this city that are equipped with such windows, and in one case proved very successful in an exposure fire.

Yours very truly,

J. A. BRANT, Manager.

Michigan Inspection Bureau.

Detroit, Mich., January 24th, 1901.

Messrs, Voigtmann & Company,
Nos. 123-27 Ontario St., Chicago.

Gentlemen:—

In response to your request of 23rd inst., I have to say, that this Bureau sometime since approved the use of Wire Glass Windows with metal frames and sashes in place of fire shutters. As a protection against heat exposure, and where not subject to mechanical injury, we regard these windows as an improvement to the fire hazard, and we advise their use whenever occasion offers.

The self-closing device to which you call attention would seem to be useful as being automatic in its action, permitting windows to close without direct human agency when an emergency arises.

Yours truly,

E. F. CHAPMAN, Inspector.

Showing a small part of our Fire Window Equipment necessary to guard Malt-House from Grain Elevator in close proximity.

This cut shows our Perpendicularly pivoted window in drying room of Thos. J. Lipton, Union Stock Yards.

Grand Crossing Tack Co.

Grand Crossing, Jan. 30, 1901.

Messrs. Voigtmann & Company,
123-127 Ontario St., Chicago.

Gentlemen:—

Since equipping a building two years ago, upon the recommendation of an insurance man, with your standard fire windows rather than the ordinary window with fire shutters, we have been able to continue the use of your window with much satisfaction to ourselves owing to the uniformity of your workmanship, the conservative manner in which you market your product, the advantages we gain in handling our work and by the favor shown in ratings by insurance authorities.

Yours very truly,
GRAND CROSSING TACK CO.
E. B. N.

Mauran, Russell & Garden,
Architects.

St. Louis, January 31st., 1901.

Voigtmann & Company,
Chicago, Ill.

Dear Sirs:—

We have used your fire windows in building which we constructed for Simmons Hardware Company of this city. The advantages presented by the combination of materials in your device is such as to prove a desirable substitute for ordinary windows and cumbersome fire shutters.

We are at present installing your windows in an electric light and power station where the outside risk is the only important matter for consideration and consider that nothing else would exactly fulfill similar requirements.

Yours truly,
MAURAN, RUSSELL & GARDEN.

Cincinnati, O., Feb. 1, 1901.

Messrs. Voigtmann & Company,
Chicago.

Gentlemen:—

Our use of your fire windows in building recently erected by us for the Bodman estate for use of the Cincinnati Cordage & Paper Co. proves very satisfac- to our clients and commands from underwriters very economical insurance rates. The ribbed wire glass seems especially valuable for the abundance of light it diffuses. A matter of much interest and possible value is the fact that paper, in its infinite variety of colors and tints, does not have to be covered to protect it from fading as was the case when the ordinary clear glass windows were used.

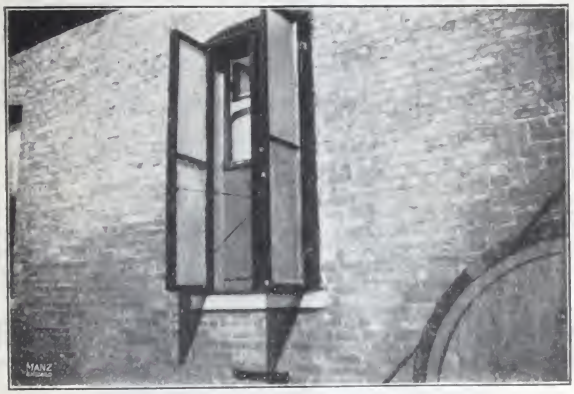
We realize that buildings so equipped afford the fire departments advantages in the management of fires that will increase in favor as fire departments have occasion to make comparisons.

BOLL & TAYLOR.

A light of Polished Wire Glass in lower sash will afford an outlook.

With apologies for cramped appearance and poor views, we offer these to show some of our large Fire Window Work as done in construction of Armour & Co. Power House at Stock Yards. Windows shown are twenty and thirty feet in height.

Skylight on same Power House, showing Side Windows before the same were automatically equipped.



Showing a construction of Fire Windows made for Chicago Telephone Co. at their 22nd Street Station so as to afford them ample protection against fire without removing old windows. The addition of Fire Windows in this case is an extra precaution against dust. This construction can be conveniently seen by windows in North wall of Mandel Bros. new addition in a reverse construction to allow cleaning. The Mandel Bros. Windows we made in compliance with drawings we furnished. Messrs. Holabird & Roche, Architects.

Showing a construction that allows either sash to slide side ways; of necessity non-automatic.

THE conservative nature of Building Investments and the desirability of Wire Glass in Metal Frames are now established facts for Architects to work upon.

The Voigtmann Standard

Automatic Closing Fire Window

a Specialty.

CHALLENGE

To build so as to minimize cost of maintenance,

To build so as to command a low insurance rate,

To build so as to secure constant fire protection without interference with light and ventilation,

To use Prismatic Wire Glass that increases quantity and quality of light,

Are Indisputable Good Investments

Building for approval of Fire Underwriters Associations is too general.

Observance of Fire Window requirements should have rating significance.

[Richard E. Schmidt
ARCHITECT
No. 172 Washington Street
CHICAGO

Chicago, November 18, 1899.

Messrs. Voigtmann & Co.,
125 Ontario Street, City.

Gentlemen:—

The 326 hollow metal pivoted sash and hollow metal window frames, provided by you for Montgomery Ward & Co.'s new building, Madison Street and Michigan Avenue, in this city, are very satisfactory in operation and fully meet my expectation. Metal was selected for the window frames and sash to avoid the shrinkage of wood, and to increase the area of glass for a given opening to the maximum width without encroaching on the fire proofing of the columns. The sash being pivoted at top and bottom conforms with the city ordinance requiring sash, both sides of which can be cleaned from the interior of the building. The additional cost of these metal frames was so slight an advance over wood frames that the difference was not considered by the owners.

Yours very truly,

(Signed) Richard E. Schmidt.

ADOPTION OF OUR STANDARD WINDOW.

We have sold our Standard Automatic Closing and Locking Fire Window for Work as described below.

Malt-House for P. H. Rice. Cragin, Ill., Holabird & Roche, Architects.
W. W. Kimball Piano Co., 1897. 1898, 1899, 1900 and 1901.
Chicago Cottage Organ Co., Chicago.
Mussey Billiard Room Building, Madison St., near Dearborn, Chicago, Messrs. Hill & Woltersdorf, Atchitects.
Deering Harvester Co., Chicago.
Armour & Co., 3 Factories, Chicago.
Studebaker Mfg. Co., of South Bend, Chicago Warehouse.
Halliday Milling Co., Cairo, Ill.
Grand Crossing Tack Co , Grand Crossing, Ill.
La Crosse Plow Co., La Crosse, Wis.
Weber Wagon Co., Chicago.
Nelson Morris & Co., Union Stock Yards, Chicago.
Large Grocery Warehouse, Market St., Chicago, D. H. Burnham & Co., Architects.
J. S. McDonald & Co., Manufactures of Fine Stationery, Chicago.
Two Schools for the Board of Education, Chicago.
National Malleable Castings Co., Chicago.
Blodgen Milling Co., Janesville, Wis.
McCormick Har. Mach. Co., 2 Factories, Warehouse and Power Plant.
Fish Bros.' Wagon Co., Racine, Wis.
Kieckheffer Bros., Milwaukee, Wis., Chicago Warehouse.
Adams & Westlake Mfg. Co., Chicago.
Marshall Field & Co., Warehouse and Wholesale Bldg., Adams St., Chicago.
Kingman Improvement Co., Kansas City and Peoria, W. C. Root, Architect.
Simmons Hardware Co.'s Warehouse, St. Louis.
Montgomery Ward & Co.'s New Building on Michigan Ave., Chicago.
T. J. Lipton & Co., Union Stock Yards, Chicago.
Plano Mfg. Co., West Pullman.
Edison Bldg., Adams St., Shepley, Rutan & Coolidge, Architects.
Shattuck, Babcock & Co., De Pere, Wis.
Kingan Co., Indianapolis, Ind
Bemis Omaha Bag Co., Omaha.
Western Methodist Book Concern, Chicago, H. B. Wheelock, Architect.
Grain Elevator, Rosenbaum Bros., Chicago.
American Radiator Co., Titusville, Pa.
Schlesinger & Mayer, New Retail Store Building, Louis H. Sullivan, Architect.
Butler Bros., Warehouse, Jarvis Hunt, Architect.
Bodman Estate, Cincinnati, Warehouse, Boll & Taylor, Architects.
Telephone Building, Rochester, N. Y., J. Foster Warner, Architect.
Milwaukee Harvesting Machine Co., Milwaukee.
Crane Co., Factory, Chicago.
F. A. Walsh, Warehouse, Milwaukee, Wis.
Joseph Downey, Warehouse, Chicago.
M. Seyfang & Co., Factory, Toledo, O.
Wabash Paper Co., Wabash, Ind.
National Biscuit Co., Chicago.
Wallbridge Hardware Co., Buffalo, Green & Wicks, Architects.
Chicago Telephone Co., A. V. Abbott, Chief Engineer, sub-station.
Illinois Malleable Casting Co., Chicago.
Comstock Building, Evanston, Ill., Charles A. Ayars, Architect
Emery, Bird & Thayer, Warehouse, Van Brunt & Howe, Architects, Kansas City, Mo.
H. Friedman & Co , Cleveland, O., M. M. Gleichman, Architect.
Kingman Plow Co., Peoria, Ill.
Commonwealth Electric Co., Chicago, Shepley, Rutan & Coolidge, Architects.
Sidney Mandl, Division St., Chicago, Charles Furst, Architect.

Union Bag & Paper Co., Sandy Hill, N. Y.
Hiram Walker & Sons, Detroit, Nettleton & Kahn, Architects,
American Cereal Co., Cedar Rapids, Ia.
Cable Piano Co., Chicago, Reader & Coffin, Architects.
Chamberlain Medicine Co., Des Moines, Ia., Liebbe, Nourse & Rasmuseen, Arch'ts.
Peabody & Stearns, Architects, Boston, Mass.
D. X. Murphy, Architect, Louisville, Ky.
Matthews & Clark, Architects, St. Louis, Mo.
Rockford Hosiery & Mitten Co., Rockford, Ill.
Donaldson & Meier, Architects, Detroit, Mich.
Stratton & Baldwin, Architects, Detroit, Mich.
Brunswick-Balke-Collender Co., Chicago, Treat & Adler, Architects.
Nelson, Baker & Co., Detroit, Mich., R. E. Raseman, Architect.
T. M. Sinclair & Co., Cedar Rapids, Ia.
Atherton Building, Louisville, Ky., Dodd & Cobb, Architects.
Peoria Lounge & Mattrass Co., Peoria, Ill.
United Sash & Door Co., Wichita, Kas.
W. T. Smith, Factory, Kansas City, Mo., Root & Siemens, Architects.
Le Moyne Storage Building, Chicago, Holabird & Roche, Architects.
Maywood Foundry Co., Maywood, Ill., M. J. Morehouse, Architect.
Lanett Cotton Mills, West Point, Ga.
T. B. Laycock Mfg. Co., Indianapolis, Ind.
Kingan Provision Co., Syracuse, N. Y.
Sprague, Warner & Co., Chicago, H. B. Wheelock, Architect.
L. P. Lees Building, Chicago, Simeon Eisendrath, Architect.
Swope Buildings, Kansas City, Mo., Louis Curtiss, Architect.
Darling & Co., U. S. Yards, Chicago, Fritz Foltz, Architect.
Stephen Smith's Sons, Bloomington, Ill., F. W. Perkins, Architect, Chicago.
Schulz Piano Co., Chicago, Charles Thisslew, Architect.
George W. Corbett, Architect, Washington, D. C.
W. H. Carradine, Monroe, Wis.
Dr. R. D. Shepard Building, Chicago, George Messersmith, Contractor.
Cole Mfg. Co., Chicago, M. J. Moorehouse, Architect.
Moore & Co., Indianapolis, Ind.
Newman Bros. Piano Co., Chicago, John M. Van Osdel, Architect.
Schwarzschild & Sulzberger Co., U. S. Yards, Chicago.
La Clede Power House, St. Louis, Mo., Mauran, Russell & Garden, Architects.
Inter-Ocean Building, Chicago, Carbys W. Zimmerman, Architect.
B. Subert & Sons Building, Chicago. Otto Matz, Architect.
J. Ross Todd Building, Louisville, Ky , Clark & Loomis, Architects.
J. G. Peppard Building, Root & Siemens, Architects, Kansas City, Mo.
Bell Telephone Co., Buffalo, N. Y., A. J. Warner, Architect, Rochester, N. Y.
Memphis Steam Laundry, Memphis, Tenn.
Bemis Bag Co., Indianapolis, Ind.
Lester Piano Co., Lester Pa., Hales & Ballinger, Architects, Philadelphia.
Best Brewing Co., Chicago.
Weber Wagon Co., William Strippleton, Architect, Chicago.
Stein, Hirsch & Co., S. B. Eisendrath, Architect, Chicago.
Weed & Co., Buffalo, N. Y.
David S. Gray Bldg., F. L. Packard, Architect, Columbus, O.
Armour & Co., Lard Factory, U. S. Yards, Chicago.
Piano & Organ Supply Co., Freeman, Hart & Co., Contractors, Chicago.
Lease & McVitty, Warehouse, Keen & Mead, Architects, Philadelphia, Pa.
Knapp & Spencer Bldg., Wilfred W. Beach, Architect, Sioux City, Ia.
J. K. Farley Mfg. Co., Edmund P. Krause, Architect, Chicago.
Owens Building, Allan D. Conover, Architect, Madison, Wis.
E. Godel & Sons, Peoria, Ill.
The Packard Co., Ft. Wayne, Ind.
Toledo Match Co., Geo. S. Mills, Architect, Toledo, O.
Chicago Hardware Mfg. Co., North Chicago, Ill.
Geo. B. Carpenter & Co., Chicago.
Joliet Stove Works, Joliet, Ill.
E. D. Blatchford & Co., Chicago, John Wagner, Architect.
Wells, Abbott & Nieman, Schuyler, Neb.
Dean Building, Louis Curtis, Architect, Kansas City.

VOIGTMANN & COMPANY,

123-127 ONTARIO ST.

FORM OF CONTRACT

Between Architect or Owner and Voigtmann & Company.

Messrs......

We have submitted the general plan of proposed building for

Messrs.....*with location of same and surrounding conditions, to Rating Department of Underwriters Office and have to advise you that an equipment in fire window work will demand window construction in number and kind as follows:*

(Insert here description of windows required giving total number of windows and footage.)

We will furnish such equipments in strict accordance with requirements governing such construction, painted before delivery, all necessary hardware in place fitted with ¼-inch ribbed wire glass, and adjusted for the sum of.....

.....*Dollars.*

The above quantities can be increased or diminished, the price to be pro rated on a square foot basis with the understanding that the square footage to openings will continue in proportion as above.

Respectfully submitted,

Accepted, ...

.....*Architect.*

.....*Owner.*

SOMETHING like this will, we are sure, prove a conclusively good and valuable alternative to the frequent practices of embodying loosely drawn and very general fire window specifications under the "Metal Heading" that stands for cornice, skylight and roofing work, which we have noticed is often accompanied with a sweeping clause squinting at possible demands of Fire Underwriters Associations and security from infringements of patents.

The following paragraph is given as a suggestion for incorporation into general specifications as a guide to contractor to be used in connection with form of contract on opposite page:

> "Window openings as shown by elevation to have Fire Windows as per contract with Voigtmann & Company, who agree to deliver windows at building so as to allow mason contractor to hoist, set, plumb and brace them for his workmen to build in as walls are carried up. Voigtmann & Company further contract to furnish glass and attend to glazing at a time when all windows are ready for glazing and to perform such other work incidental thereto as will facilitate the general interests of owner and architect."

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1. **Standard Automatic**
2. **Standard Non-Automatic**
3. **Single Sash Standard**
4. **Double Standard**
5. **Counter Balanced**
6. **Fire Escape Windows**
7. **Stationary Windows**
8. **Bulkhead Windows**
9. **Box Frames, with or without Sash Weights.**
10. **Transoms**
11. **Wire Glass Panels for Iron Doors**
12. **Partition Work, with or without Structural Iron.**

Cut of
Box Frame
Window
Made of
Structural Iron

AGENCIES.

PHILADELPHIA, PA. Merritt & Co., 1024 Ridge Ave.
BOSTON, MASS. G. W. Sherman, 53 State Street.
BUFFALO, N. Y. Weed & Company.
CLEVELAND, OHIO. C. D. Gaylord, St. Clair & Becker Ave.
CINCINNATI, OHIO. Edw. C. Hoyer, Court & Broadway.
ST. LOUIS, MO. Voigtmann & Company.
KANSAS CITY, MO.
Builders Material Supply Co., Postal Building.
OMAHA, NEB. D. O. McEwen, 1214 Douglas Street.
SIOUX CITY, IA. C. E. Haakinson & Co.

ROOT & FULLER, PRINTERS, 340 DEARBORN ST., CHICAGO